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*A Sketch of the Life of Henry James Brooke, Actuary of the London Life Association.\**

HENRY JAMES BROOKE was born at Exeter on the 25th of May, 1771. His relations were engaged in the manufacture of broadcloth. After having received an ordinary scholastic education, he studied for the bar; and had very nearly completed the usual period, when the prospect of advantageous connections with the manufacturing firms in the west of England induced him to engage in the Spanish wool trade in London, for which object he spent nearly two years in Spain.

The precise habit of thought and expression which the active study of the law must necessarily induce, was perhaps mainly instrumental in imparting the tone of extreme precision by which all his subsequent acts and observations were characterized.

Soon after he took up his residence in London, in the year 1802, his attention was turned to the subjects of mineralogy, geology, and botany; and to the two former of these sciences, then in their infancy, the greater portion of his leisure hours was devoted. He was elected a Fellow of the Geological Society in 1815, of the Linnæan in 1818, and of the Royal Society in 1819. He served on the Council of the Royal Society in 1842-44.

Mr. Brooke was associated with the late Mr. Henry Hase, cashier of the Bank of England, and others, in the establishment of the London Life Assurance Association, the commercial success of which bears ample testimony to the soundness of the principles on which it was established.

On the decline of the Spanish wool trade, which was superseded in a great measure by that with Germany, Mr. Brooke sought a commercial pursuit more congenial to his tastes, and devoted his energies to the establishment of Companies to work the mines of South America; but in these undertakings the fairest prospects were blighted by an entire absence of good faith abroad, and failure was the inevitable result. After this period he accepted the office of secretary to the London Life Association, the duties of which he discharged for many years; and, on his retirement, the appreciation of his services by the Society was evinced by the grant of a liberal annuity.

During a period of several years his devotion to his favourite pursuits was much interfered with by the result of an accident:

\* From the *Proceedings of the Royal Society*.

he was knocked down by a horse suddenly turning the corner of a road near his residence at Stockwell, and the fall produced a slight concussion of the brain; after which, for a considerable period, his accustomed mental efforts were followed by sleeplessness and other symptoms of undue cerebral excitement. During this period, finding absolute inaction extremely irksome, he sought pursuits which would occupy his hands, with less demand on the brain than those to which he had been devoted. He formed a large collection of shells; but feeling the pursuit to be objectless if irrespective of the structure and functions of their living tenants, he abandoned it, and presented the collection to the University of Cambridge. Mr. Brooke then became a collector of engravings—having in early life imbibed a taste for art, and exercised that of water-colour drawing. These he was so successful in cleaning and restoring, that when, having so far recovered as to resume his original pursuits, he disposed of his collection, the aggregate value was greatly augmented, notwithstanding the presentation of some specimens of rare excellence to the national collection in the British Museum.

Having been blessed to the last with an unusually perfect enjoyment of his faculties, his favourite studies were actively pursued until a very short period before his decease, which occurred from natural decay, accelerated by the depression of the system produced by a severe cold, on the 26th of June, 1857.

The *Familiar Introduction to Crystallography*, the first systematic treatise on this branch of science, was published in 1823. In this, following the steps of Haüy, he referred the existing forms of crystals to an unnecessarily large number of *primary* forms; but the trigonometrical relations of the various existing plane surfaces of crystals were then first clearly traced out.

In the subsequent treatise on crystallography, published in the *Encyclopædia Metropolitana*, the former system was much simplified and the number of primary forms reduced to six, which, differing essentially from each other, correspond with the six systems generally adopted by continental crystallographers.

The discovery and description of thirteen new mineral species are due to Mr. Brooke's researches: to these may be added two others, the published descriptions of which were just anticipated, in point of time, by those of continental mineralogists. These notices will be found in the pages of the *Philosophical Magazine and Annals*, and of the *Edinburgh Philosophical Journal*.

He was the first to make extensive use of the reflective goni-

ometer in determining the forms of the crystals of artificial salts. The *Annals of Philosophy* for 1823 contain the determination of the forms of no less than fifty-five different laboratory crystals—a work of much persevering labour. If only the chemical composition of these salts had been accurately known in England at the time, their measures would have served as a basis whereon to found the theory of isomorphism.

The treatise on mineralogy in the *Encyclopædia Metropolitana* was the first systematic work on the subject with which the name of Mr. Brooke is associated. This was originally intended to have been a very complete treatise; but repeated editorial remonstrances on account of want of space compelled our author to cut it down to little more than a mere catalogue of minerals, with a few of their more important chemical characters. The only complete treatise on mineralogy with which his name is connected is the recent re-edition, or rather reproduction, of W. Phillips's treatise, in conjunction with Professor W. H. Miller, who took upon himself by far the greater portion of the labour incidental to publication.

It may be here remarked that Mr. Brooke entertained a strong impression of the desirableness of rendering the study of crystallography more attainable to many whose minds are not so habituated to the abstractions of analysis as to contemplate a plane merely as the geometrical impersonation of  $ax + by + cz = 0$ : this object he proposed to attain by means of a more direct reference of the existing planes of crystals to simple geometrical or *primary* forms than the last-mentioned treatise presents.

Mr. Brooke's latest efforts were directed to the general relations and geometrical similarity of all crystals belonging to the same system. A paper on this subject, read before the Royal Society, which was in the press at the time of his decease, contains a comparison of the forms of all known minerals belonging to the rhombohedral and pyramidal systems, and will probably be found to throw some new light on the theory of isomorphism.

His unrivalled collection of minerals, comprising the choicest specimens that he could, with ample opportunities, collect during half a century, has been presented to the University of Cambridge, as the best means of rendering it subservient to the advancement of mineralogical science.

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